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Abstract

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PI Title:

Project Title: NEUROBIOLOGY OF HYPOTHALAMIC PAIN MODULATION

Abstract: *Pain is a major health issue of great concern to nurses. Most pain- related nursing research is concerned with pain measurement and intervention, but to optimize such research and understanding of how the body modifies incoming pain stimuli is necessary. The proposed study investigates the role of the lateral hypothalamus in endogenous modulation of pain, or analgesia, in a rat model. Because the lateral hypothalamus makes few direct connections with the spinal cord dorsal horn, a key site for pain modulation, it is likely that the lateral hypothalamus evokes analgesia through other brain structures. Using tract-tracing combined with immunocytochemistry, the neurochemical identity of connections between the lateral hypothalamus and four brainstem nuclei that attenuate painful stimuli will be studied. These four nuclei are the periaqueductal grey, the dorsolateral pontine tegmentum, the benntromedial medulla and the pedunclopontine tegmentum. To determine a functional role for the lateral hypothalamus in pain modulation, various receptor agonists and antagonists will be micro injected into these brain structures to induce, and then block, an analgesic effect. Analgesia will be measured using the tail flick and foot withdrawal latencides, standard analgesiometric tests. Data will be analyzed using descriptive statistics and two-way repeated measures ANOVA. The findings of this study will provide better understanding of endogenous pain modulatory systems which can lead to improved pharmacological and non-pharmacological human pain management studies.*

Thesaurus Terms:

analgesia, hypothalamus, neural information processing, neurobiology, pain brain /spinal pathway /tract, neuroanatomy, neurochemistry, neurotensin, periaqueductal

*gray matter, stimulus /response, substance P, tegmentum
immunocytochemistry, laboratory rat, microinjection*

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